

"Control of Plasma Transitions in Sputter Processing Systems" by Sellers
 Serial No.: Not Yet Assigned Filed: Herewith
 Atty Docket No.: ASX-064 (473/79)
 Jamie H. Rose (617) 248-7376
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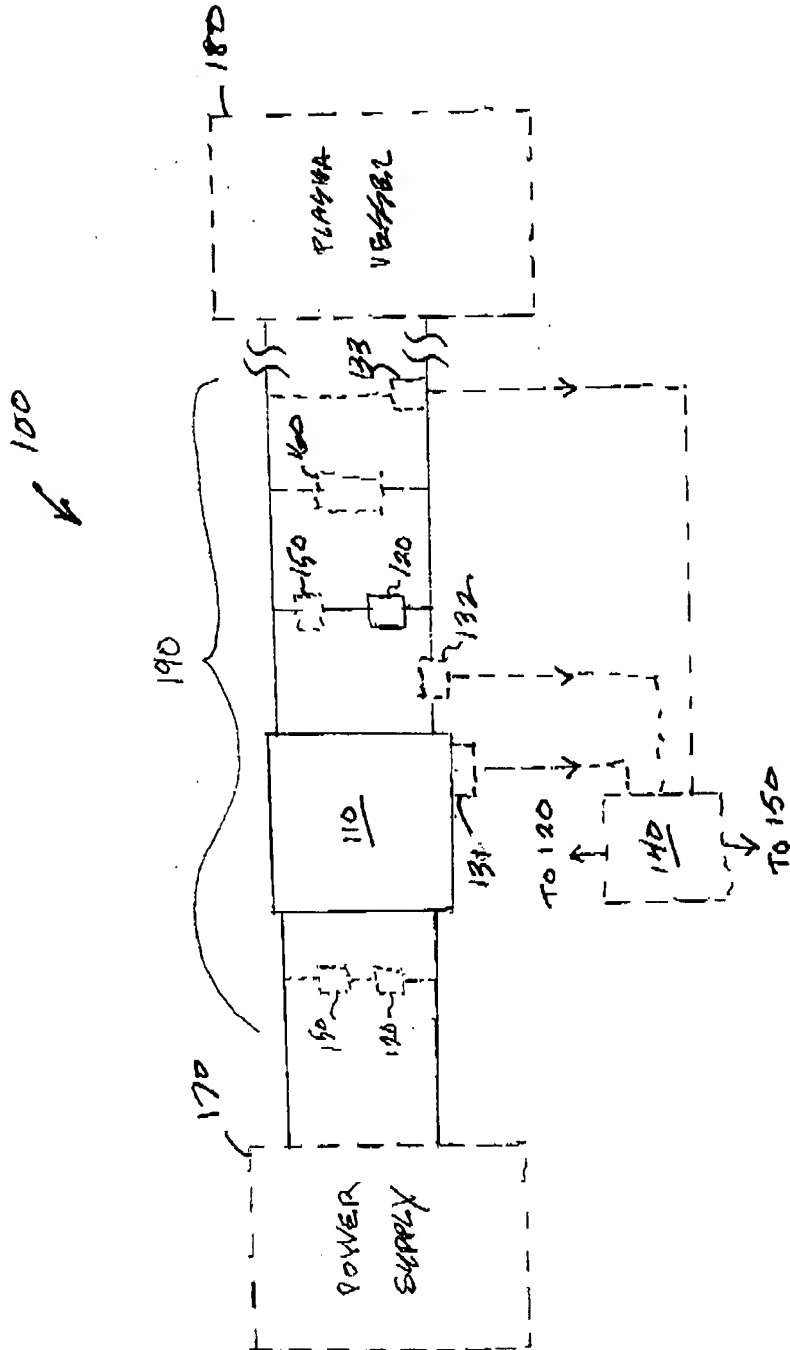


FIG. 1a

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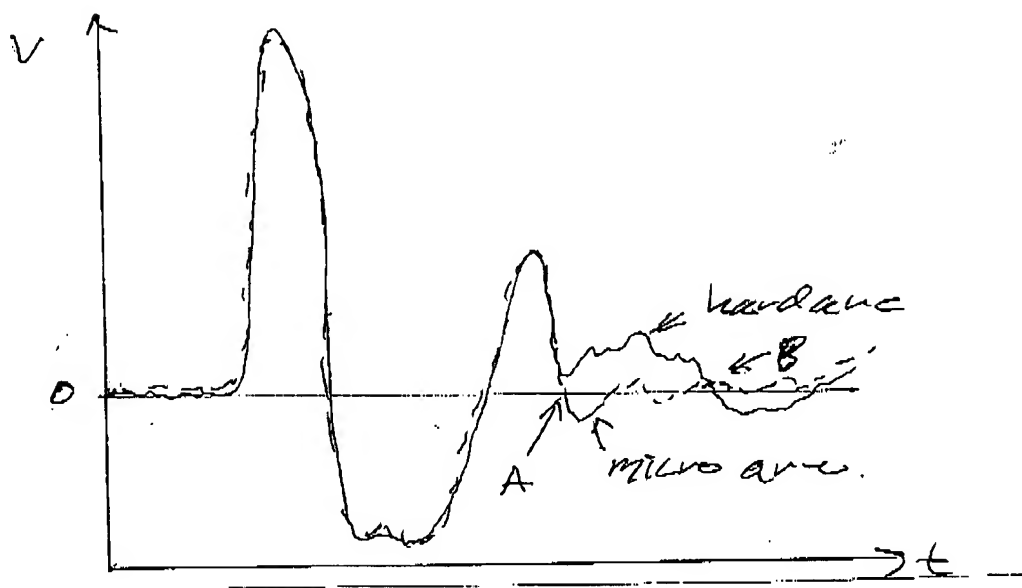


FIG. 1b

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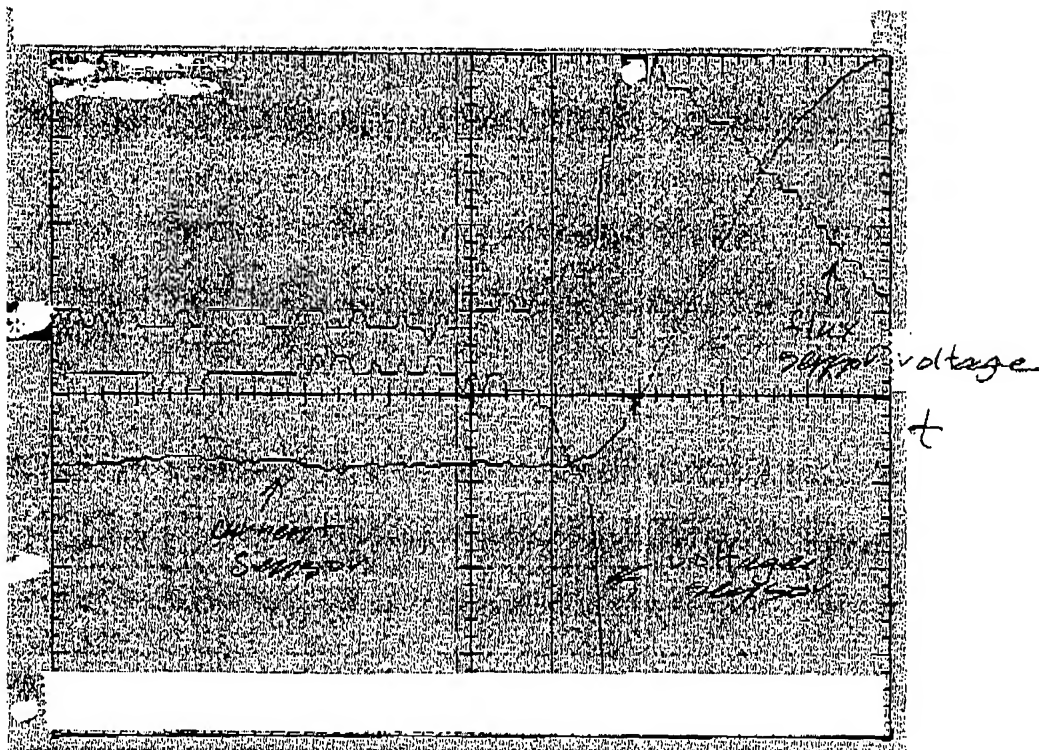


FIG. 1c

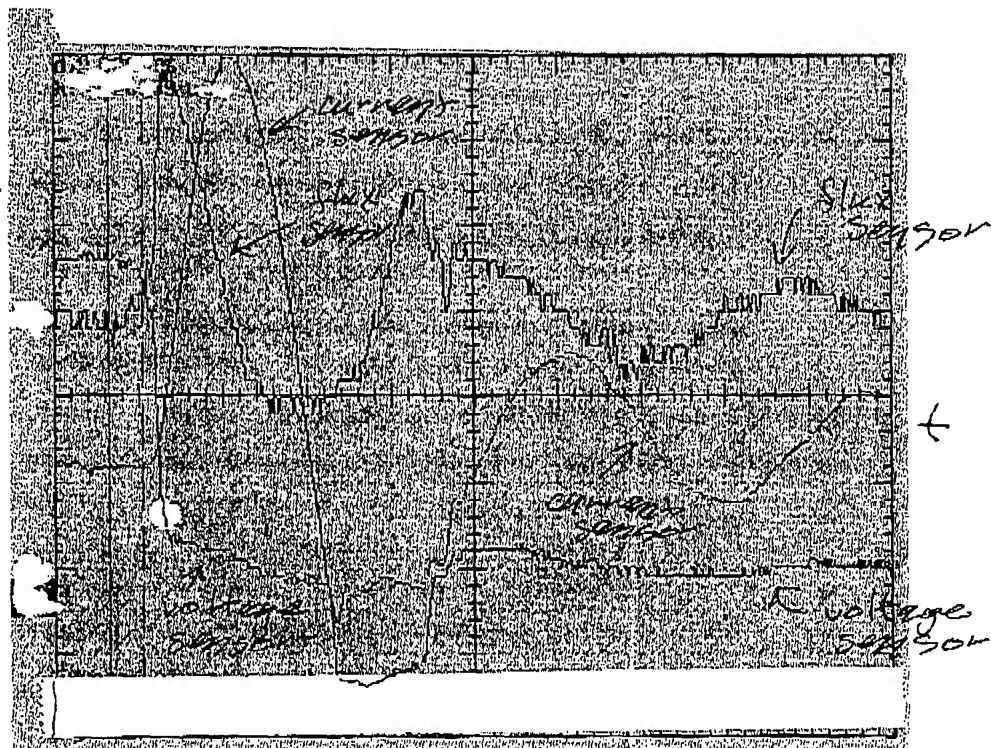


FIG. 1d

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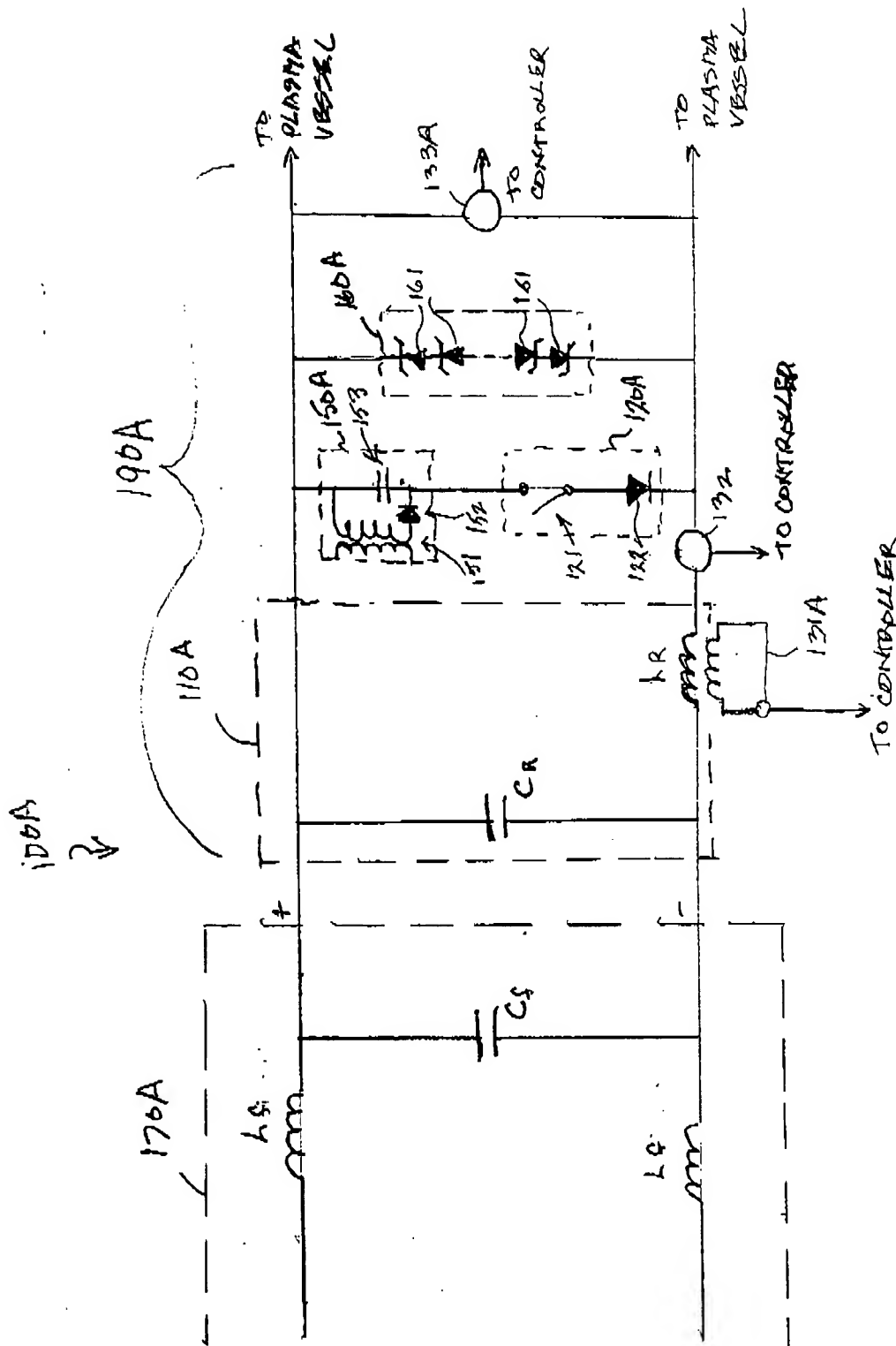


FIG. 2

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300

↓

providing a resonant circuit in electrical communication with an output of a power supply and an input of a plasma vessel
(Step 310)

↓

detecting a change in a signal that indicates a transition of a state of a plasma in the plasma vessel
(Step 320)

↓

shunting the resonant circuit after the change is detected to permit a resonance of the resonant circuit
(Step 330)

↓

waiting for a half cycle before again shunting if the arc discharge plasma persists
(Step 340)

↓

repeating shunting and waiting until the change is no longer detected
(Step 350)

↓

detecting a change in a second signal that indicates the transition of the state of the plasma or reignition of the plasma
(Step 360)

↓

reigniting the plasma after extinguishing the undesired plasma state
(Step 370)

FIG. 3

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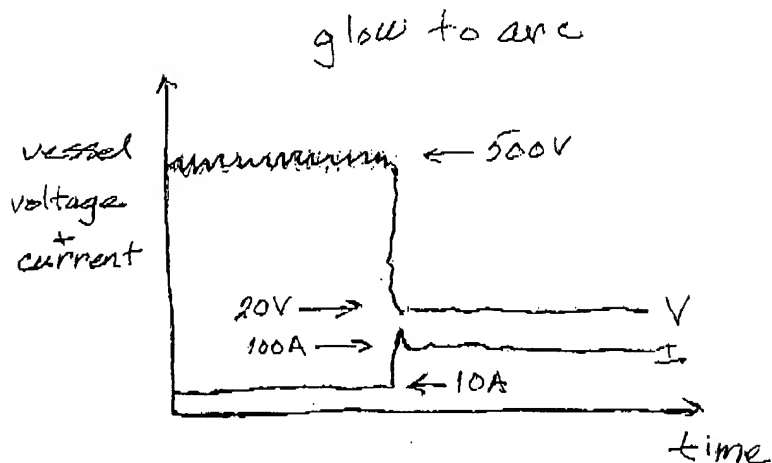


FIG. 4

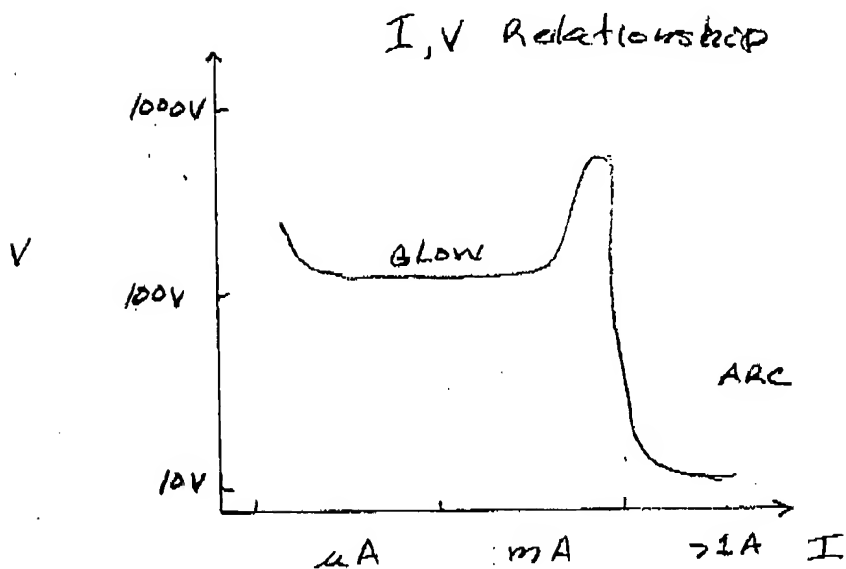


FIG. 5

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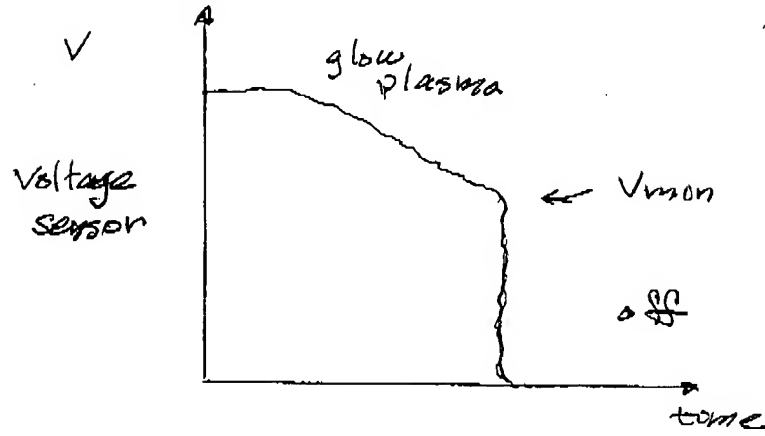


FIG. 6

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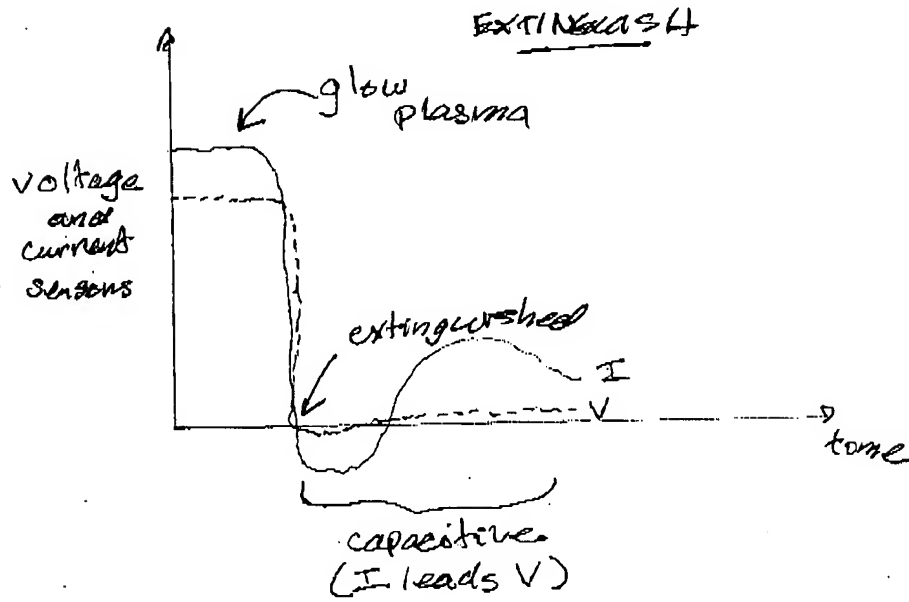


FIG. 7

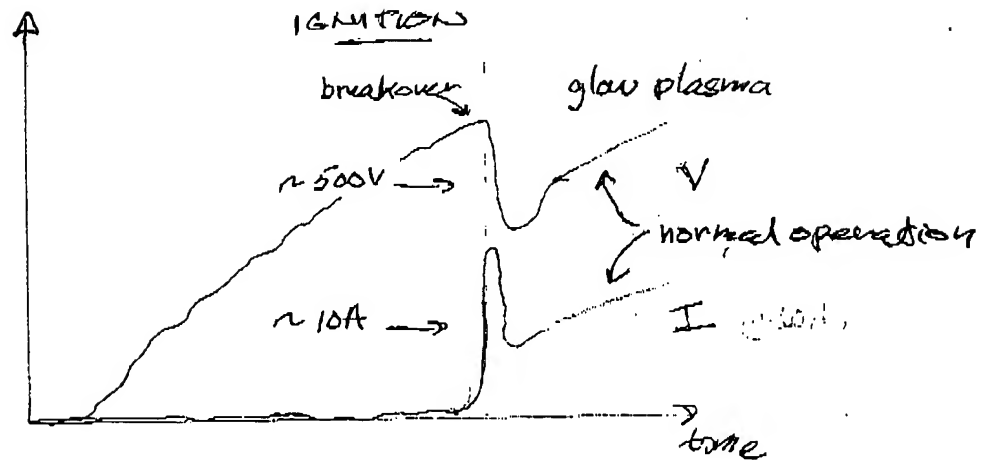


FIG. 11

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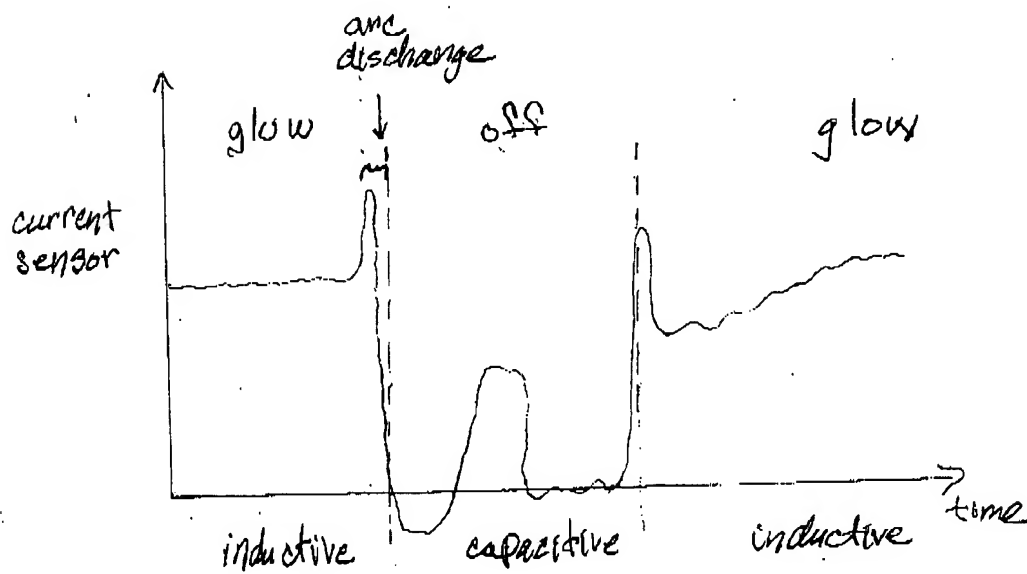
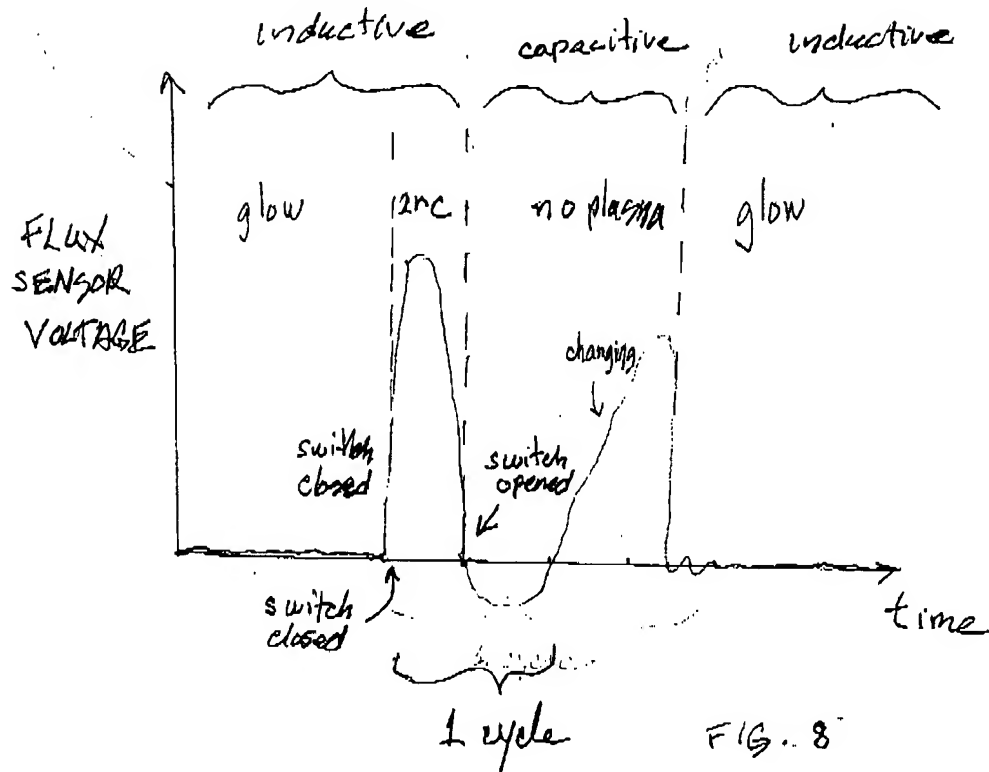


FIG. 9

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1000

↓

providing a resonant circuit in electrical communication with an output of a power supply and an input of a plasma vessel, the resonant circuit for storing and releasing energy
(Step 1010)

↓

shunting the resonant circuit to increase an energy stored in the resonant circuit
(Step 1020)

↓

removing the shunt to direct the stored energy to the input of the plasma vessel to ignite the plasma in the plasma vessel
(Step 1030)

↓

sensing a signal associated with a state of a plasma in the plasma vessel
(Step 1040)

↓

shunting to extinguish a plasma in the plasma vessel if the signal indicates an undesired plasma state of the plasma in the plasma vessel
(Step 1050)

FIG. 10